AF

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REPLY/AMENDMENT FEE TRANSMITTAL

Attorney Docket No.	95-309
Application Number	09/482,956
Filing Date	January 14, 2000
First Named Inventor	KANURI
Group Art Unit	2666
Examiner Name	JAGANNATHAN, Melanie

AMOUNT ENCLOSED	$ 0

FEE CALCULATION (fees effective 10/01/2003)

CLAIMS AS AMENDED	Claims Remaining After Amendment	Highest Number Previously Paid For	Number Extra	Rate	Calculations
TOTAL CLAIMS	22	22	0 (3)	X $50.00 =	$0
INDEPENDENT CLAIMS	3	3	0	X $200.00 =	$0

Since an Official Action set an original due date of_____, petition is hereby made for an extension to cover the date this reply is filed for which the requisite fee is enclosed (1 month ($120); 2 months ($450); 3 months ($1020); 4 months ($1,590); 5 months ($2,160)):	$0
If Statutory Disclaimer under Rule 20(d) is enclosed, add fee ($110)	+$0
Total of above Calculations =	$0
Reduction by 50% for filing by small entity (37 CFR 1.9, 1.27 & 1.28)	-
TOTAL FEES DUE =	$0

(1) If entry (1) is less than entry (2), entry (3) is "0".
(2) If entry (2) is less than 20, change entry (2) to "20".
(4) If entry (4) is less than entry (5), entry (6) is "0".
(5) If entry (5) is less than 3, change entry (5) to "3".

METHOD OF PAYMENT

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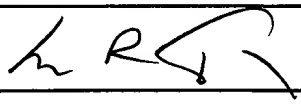
AUTHORIZATION

[X] If the above-noted "AMOUNT ENCLOSED" is not correct, the Commissioner is hereby authorized to credit any overpayment or charge any additional fees under 37 CFR 1.16 or 1.17 necessary to maintain pendency of the present application to:

Deposit Account No.:	50-0687
OrderNo.: (Client/Matter)	95-309

SUBMITTED BY: MANELLI DENISON & SELTER PLLC

Typed Name	Leon R. Turkevich	Reg. No.	34,035
Signature		Date	June 10, 2005

Docket No.: 95-309

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of	:	**EXPEDITED PROCEDURE UNDER 37 CFR §1.116**
KANURI	:	
Serial No.: 09/482,956	:	Group Art Unit: 2666
Filed: January 14, 2000	:	Examiner: JAGANNATHAN, Melanie

For: ARRANGEMENT FOR SEARCHING NETWORK ADDRESSES IN A NETWORK SWITCH USING MULTIPLE TABLES BASED ON SUBNET IDENTIFIER

RESPONSE AFTER FINAL

MAILSTOP: AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Final Official Action mailed April 29, 2005, applicant hereby submits the following remarks:

Reconsideration and allowance of the above-referenced application are respectfully requested. Claims 1-22 are unchanged and remain pending in the application.

Claims 1-6, 9-13, 16-18, and 20-22 stand rejected under 35 USC §103 in view of U.S. Patent No. 6,262,988 to Vig and U.S. Patent No. 6,697,338 to Breitbart et al. This rejection is respectfully traversed. The arguments submitted June 12, 2004, are incorporated in their entirety herein by reference. The following comments address the issues raised by in the Final Action.

Applicant objects to the Final Action as incomplete because it fails to answer the material traversed. (See MPEP §707.07(f) "Where the applicant traverses any rejection, the examiner should, if he or she repeats the rejection, take note of the applicant's argument and answer the substance of it.").

In particular, the Final Action fails to address Applicant's first argument, namely that Vig provides no disclosure or suggestion whatsoever of an integrated network switch, as claimed. As argued on pages 1 and 3-4 of the Response filed June 14, 2004, Vig discloses that all layer 3 operations must be passed from the switch to the CPU: Fig. 9 illustrates a network switch 90 that *includes* the CPU 95 (see, e.g., col. 9, lines 20-36), and the repeated references to layer 3 operations being performed by the switch CPU *teaches away* from the claimed integrated network switch, since one having ordinary skill in the art would conclude that the CPU is a separate component within the switch 90.

Hence, Vig provides no disclosure or suggestion whatsoever of the explicit claim limitation of an integrated network switch as specified in independent claims 1, 10, and 17. Further, the Final Action fails to provide any motivation for one skilled in the art to have modified Vig in order to implement the entire switch on a single integrated chip, as claimed.

In fact, the assertion by the Examiner on page 5 that "Examiner interprets claimed switching module as switch CPU [sic]" demonstrates a deliberate disregard of the explicit claim limitation of an ***integrated network switch***, since a CPU is well known to be implemented as its own single integrated circuit. One skilled in the art would conclude from Vig that the network switch would need to be constructed by connecting the remaining switch components to the integrated CPU.

It is well settled that each and every claim limitation must be considered. As specified in MPEP §2143.03, entitled "**All Claim Limitations Must Be Taught or Suggested**": "To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). 'All words in a claim must be considered in judging the patentability of that claim against the prior art.' *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970)." MPEP §2143.03 at 2100-133 (Rev. 2, May 2004).

Since the Final Action fails to address the explicit claim limitation of an ***integrated network switch***, for this reason alone the rejection should be withdrawn.

The Final Action also demonstrates an unreasonable interpretation with respect to the claimed "subnetwork identifier." Claims 1, 10, and 17 each specify that the "layer 3 packet information [includes] a network identifier, a subnetwork identifier, and a host identifier": claims 1 and 10 each specify that "the subnetwork identifier identifying a corresponding one of the subnetworks and the host identifier identifying a transmitting node having transmitted the layer 3 packet information from within the one subnetwork"; claim 17 specifies receiving the layer 2 data packet having the layer 3 packet information "from a network node having the corresponding host identifier and belonging to a corresponding subnetwork having the corresponding subnetwork identifier".

Hence, each of the independent claims specify that the host identifier is the layer 3 packet information that explicitly identifies the transmitting node having transmitted the layer 3 packet information from within the corresponding subnetwork identified by the subnetwork identifier.

Further, the specification describes on page 4, lines 30-32 with respect to Figure 1 that "[e]ach network station 14 within a given subnetwork 18 has a ***host identifier*** that ***enables the transmitting network station 14 to be uniquely identified within the corresponding subnetwork 18.***"

The specification also describes with respect to Figure 2 at page 6, lines 2-29 that a 32-bit (4 byte) wide IP address field 40 includes includes a network identifier field 42, a subnetwork identifier field 44, and a host identifier field 46. In particular, the IP address field is defined based on the address class in use (e.g., CLASS A, CLASS B, etc.), and implemented based on applying the appropriate subnetwork mask (see page 6, lines 24-29).

Further, as described in the specification, the address class is *defined* by the Internet Assigned Numbers Authority, which is the recognized authority in the art for defining the Internet Protocol address space.

It is well settled that while the Examiner is entitled to interpret claim language using the broadest reasonable interpretation, so long as it is consistent with the specifcation: "claims are not to be read in a vacuum, and limitations therein are to be interpreted in light of the specification in giving them their 'broadest reasonable interpretation.'" MPEP § 2111.01 at 2100-37 (Rev. 1, Feb. 2000) (quoting In re Marosi, 218 USPQ 289, 292 (Fed. Cir. 1983)(emphasis in original)). The Examiner's position, however, that "Examiner interprets mapping table storing port [in Vig] as claimed table with host identifier" is not only unreasonable, but also demonstrates a *blatant disregard* for the ***explicit teachings of the reference!***

Vig explicitly describes the same IP address structure as the above-cited portion of the specification at col. 3, line 60 to col. 5 line 13, where a 32-bit (4 byte) IP address consists of a network identifier and host identifier (assuming no subnet, see col. 4, lines 1-33), or more preferably (see col. 4, lines 34-67) a network identifier, a subnetwork identifier, and a host identifier:

> Users normally get a block of IP addresses of a certain class and then ***further divide the host identifier into an internal subnetwork number and a host identifier***. For example, ***a class B address range like 128.1.1.1 to 128.1.50.255 has an IP network identifier of 128.1, a 16 bit natural mask and a host identifier range from 1.1 to 50.255.*** The user can divide the 16 bit host identifer [sic] into an eight bit subnetwork identifier and an eight bit host identifier. Therefore the third byte in the address could represent the subnetwork identifier, which is this case would be between 1 and 50 and each subnetwork can have host identifiers in the range of 1-255. The number of bits used to represent the internal subnetwork is left to the user of the address range. Normally, this decision is based on the number of subnets needed (eg. 16 subnets could be represented with 4 bits). The rules for using IP subnetworking are explained in IETF RFC 950 which is incorporated herein by reference. *This RFC states that each IP host on the network be made aware of the subnet by using a subnet mask that is longer than the natural mask of the IP address. For example, a class B address that is to be subnetted into an eight bit subnetwork identifier and an eight bit host identifier, will have a 24 bit subnet mask. This is determined by adding the length of the natural mask (16 bits in this case) to the length of the subnetwork id (8 bits in this case).*
>
> (Col. 4, lines 43-67).

The description of a 24-bit subnet mask to identify a subnetwork is significant, because Fig. 9 of Vig precisely shows use of a 24-bit subnet mask in illustrating in the subnet-to-ports mapping table 93 the subnets "128.1.1" and "128.1.2" of the Class B network having the 16-bit IP network identifier "128.1" (i.e., "natural net is 128.1", col. 9, line 22). As illustrated in Figure 9, the hosts "HOST-1", "HOST-2", "HOST-3", and "HOST-4" have respective IP addresses "128.1.1.1", "128.1.1.2", "128.1.1.3", and "128.1.1.4", respectively. Further, Figure 9 illustrates that the hosts

"HOST-1", "HOST-2", "HOST-3", and "HOST-4" are coupled to the respective ports P1, P2, P3, and P4.

Vig further discloses in Figure 9 and at column 9, lines 20-41 that the CPU 95 uses the subnet-to-ports mapping table 93 to identify multiple destination ports that serve a given subnet: as specified in the subnet-to-ports mapping table 93 shown in Fig. 9, both ports "P1" 92 and "P3" 96 serve subnet "128.1.1", and both ports "P2" 94 and "P4" 98 serve subnet "128.1.2". Further, step 820 of Fig. 8B illustrates that learning of the subnet-to-ports mapping table 93 involves adding a source port to the "list of ports that the source subnet is currently active on." (See col. 8, lines 55-60).

Hence, the CPU 95 forwards the packet (sent by Host-1 and destined for Host-2) to "a selected set of ports p2, p4 (reference numerals 94, 98 respectively) based on the state information as maintained in the mapping table 93 with subnet to ports mapping." (See step 822 of Fig. 8B and col. 8, lines 60-67).

Further, the switch uses the ARP reply from Host-2 to associate the MAC address ("MAC-2") of Host-2 with the switch port "P2" for updating of the port mapping table 97, causing subsequent packets between Host-1 and Host-2 to be switched using layer 2 switching based on the MAC address to port mapping table 97 maintained by the switch (col. 9, lines 35-41).

Hence, Vig provides no disclosure or suggestion whatsoever of storing the host identifier, as claimed, let alone searching a table based on the host identifier specified in a received packet. Rather, Vig uses the subnet to ports mapping table 93 for outputting a packet to all ports assigned to a given destination subnet in the case of an ARP request (see step 808 of Fig. 8A), or based strictly on layer 2 MAC address to port mapping by the MAC address to port table 97.

Further, Vig provides no disclosure or suggestion of searching the table base on a host identifier, as asserted.

The assertion that "Examiner interprets mapping table storing port [sic] as claimed table with host identifier" is both an unreasonable interpretation of the claims, and a tortured interpretation of the reference. Vig ***specifically excludes*** the host identifier from the subnet to ports mapping table, as demonstrated by the fact that the table only includes the subnet values "128.1.1" reachable via ports P1 and P3, and "128.1.2" reachable via ports P2 and P4, based on specifying the ***first three bytes*** (A.B.C) of the 4-byte (32-bit) IP address (A.B.C.D). The host identifiers of "HOST-1", "HOST-2", "HOST-3", and "HOST-4" are ".1", ".2", ".3", and ".4", respectively, identified by the ***fourth byte*** (D) of the 4-byte (32-bit) IP address (A.B.C.D), illustrated as "128.1.1.1", "128.1.1.2", "128.1.1.3", and "128.1.1.4", respectively.

In other words, ***if*** the subnet to ports mapping table 93 ***did*** include the host identifiers, as alleged by the Examiner, the subnet to ports mapping table 93 of Figure 9 would specify the host identifiers ".1", ".2", ".3", and ".4"!

Hence, the Examiner is deliberately disregarding the explicit teachings Vig that specify the table specifies ***the subnets*** *("128.1.1" and "128.1.2")* ***and the ports*** (P1, P3, P2, P4), and creating a fiction that Vig also should include the host identifiers ".1", ".2", ".3", and ".4". Consequently, the rejection is legally improper because of the well settled law that a prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. MPEP §2141.02, page 2100-127 (Rev. 2, May 2004) (citing W.L. Gore & Assoc. v. Garlock, Inc., 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984)).

Further, Vig consistently states that the packet is forwarded to ***all ports*** on which the ***destination subnet*** is active (see, e.g., col. 3, lines 19-21, col. 8, lines 9-12 and 60-67, col. 10, lines 5-14 (Claim 1), col. 11, lines 6-13 (Claim 10), and col. 12, lines 11-17 (Claim 16)). Hence, the modification asserted by the Examiner is improper because it would change the principle of operation of the reference. (See MPEP § 2143.01, page 2100-132 (Rev. 2, May 2004) (citing In re Ratti, 123 USPQ 349 (CCPA 1959)).

For this reason alone the rejection should be withdrawn.

The Examiner's response on page 6 of the Final Action to Applicant's arguments with respect to claim 17 that "each network switch port receives data from a corresponding subnetwork" (see page 5 of Response Filed June 14, 2004" is that:

> "Vig discloses host 1 communicating with host 2 and packet from port 1 forwarded by switch CPU to ports 2, and p2 by use of mapping table which discloses ***each network switch port receives data from a subnetwork*** [sic]."

Once again, the Examiner is ignoring an essential claim limitation by omitting the critical claim term "***corresponding***": claim 17 specifies "a plurality of network switch ports, each configured for receiving a layer 2 data packet ... from a network node ... belonging to **a *corresponding* subnetwork having the *corresponding* subnetwork identifier**".

Hence, the Examiner's argument that "each network switch port receives data from a subnetwork" fails to address the claimed feature that each network switch port receives data from a ***corresponding*** subnetwork. The MPEP §2143.03 is explicit in its title that "**All Claim Limitations Must Be Taught or Suggested**".

For this reason alone the rejection should be withdrawn.

The Examiner's ill-founded rationale for providing a tortured interpretation of the claims and the applied references is further demonstrated by the assertion on page 6, third full paragraph, that:

> Examiner believes a subnet with multiple switch ports does not teach away from a plurality of tables corresponding to each subnetwork [sic] storing host identifiers as ***there could be*** a table for each subnet with forwarding information for the multiple switch ports.

First, the initial premise is nonsensical, distorts the claim language by the mischaracterization of "a plurality of tables corresponding to each subnetwork [sic]", and does not address Applicant's actual argument that "the Official Action is deficient because it fails to identify the claimed feature in claim 17 that each network switch port receives data from a corresponding subnetwork. As apparent from the foregoing, Vig teaches that multiple ports may be used for a given subnetwork." (Page 5, paragraph 3 of Response Filed June 14, 2004).

Aside from the fact that the initial premise is nonsensical and does not address Applicant's argument, the assertion that ***"there could be"*** is legally improper because it is without foundation. "The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." In re Fritch, 23 USPQ2d 1780, 1783-84 (Fed. Cir. 1992). In re Mills, 16 USPQ2d 1430 (Fed. Cir. 1990). No evidence of any such desirability has been presented by the Examiner.

For this reason alone the rejection should be withdrawn.

The Examiner also demonstrates on page 7 of the Final Action a tortured interpretation of Breitbart et al. of VLANs based on the assertion that "Breitbart discloses a switch belonging to multiple VLANs, ***interpreted by Examiner as subnets***".

There is no evidence of any justification for interpreting VLANs as subnets, as asserted. In fact, col. 12, lines 10-12 of Breitbart et al. specifies "[a] switch ***may belong to multiple VLANs***, and effectively maintain address forwarding tables ***for each VLAN of which it is a part***." In fact, Fig. 6 illustrates a communication network containing three (3) virtual local area networks (VLANs) (hereinafter "VLAN1", "VLAN2", "VLAN3") and three (3) subnets (hereinafter "Subnet1", "Subnet2", "Subnet 3"). As described at col. 12, lines 33-42, VLAN1 includes the path R1, S1, S2, and S4; VLAN2 includes the path R2, S1, S2, S3; VLAN3 includes the Path R3, S6, S3, S4, S2, S5, S6.

Hence:

S1 belongs to: VLAN1, VLAN2;
S2 belongs to: VLAN1, VLAN2, VLAN3;
S3 belongs to: VLAN2, VLAN3;
S4 belongs to: VLAN1, VLAN3;
S5 belongs to: VLAN3; and
S6 belongs to VLAN3.

As described by Breitbart et al. at col. 4, lines 5-7, "Virtual local area networks (VLANs) allow IP network managers to break a linkage between physical and logical connections in a network, ***by assigning the interfaces of a single network element to different subnets***." As recognized in the art (as illustrated by the attached Exhibit A, which is a web printout providing a current definition of "VLAN" by one of ordinary skill in the art at the website "webopedia.com"), a VLAN is configured by software rather than by hardware, and includes the attribute that the member nodes "behave as if they are connected to the same wire".

In contrast, both Vig and Breitbart, demonstrate that the hierarchal nature of IP addressing requires that membership in any given subnetwork is exclusive: ***any given IP node can belong to one and only one subnetwork!*** Note the above quote of Vig at Col. 4, lines 43-67, describing that a host identifier must be within the address range of the subnet identifier.

Further, Breitbart demonstrates in Fig. 6 that Subnet1 includes nodes R1, S1, and S4; Subnet2 includes nodes R2, S2, S3, and Subnet 3 includes nodes R3, S5, and S6 (col. 12, lines 33-40). Hence, Breitbart also teaches that, unlike VLAN membership, an IP node can belong to ***one and only one subnetwork***.

Moreover, Breitbart stresses at col. 1, lines 40-46 that a layer-3 topology (composed of networks, subnetworks, and hosts in a hierarchal structure) that includes "router-to-router interconnections and router-to-subnet relationships" ignores the "complex physical interconnections of layer-1 network elements such as switches and bridges that comprise ***one or more*** subnets of the network."

As described in the specification and all the applied references, subnetworks require a precise hierarchal structure within the layer 3 addressing scheme that requires exclusive membership of nodes. VLANs, however, use spanning tree algorithms to establish a physical topology of the network at the physical layer, as described by Breitbart et al.

Hence, there is no justification for the Examiner equating the disclosed VLANs to the claimed address tables storing layer 3 switching information, where each table stores the host identifiers for a corresponding subnetwork. A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. MPEP

§2141.02, page 2100-127 (Rev. 2, May 2004) (citing W.L. Gore & Assoc. v. Garlock, Inc., 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984)).

Hence, the hypothetical combination would simply provide a VLAN table (implemented within the MAC Addr –> Port Table of Fig. 6 of Vig), and a separate subnet to ports table 93 as illustrated in Vig. There is no disclosure or suggestion in the hypothetical combination of address tables storing layer 3 switching information, where each table stores the host identifiers for a corresponding subnetwork.

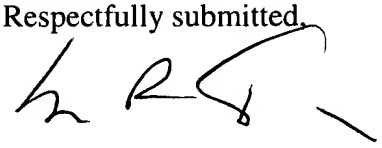
For these and other reasons, the §103 rejection should be withdrawn.

Claims 7-8, 14-15, and 19 are rejected under §103 in view of Vig, Breitbart, and U.S. Patent No. 6,266,705 to Ullum. It is believed in view of the foregoing that these claims are allowable in view of their dependency of their respective independent claims.

In view of the above, it is believed this application is and condition for allowance, and such a Notice is respectfully solicited.

To the extent necessary, Applicant petitions for an extension of time under 37 C.F.R. 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including any missing or insufficient fees under 37 C.F.R. 1.17(a), to Deposit Account No. 50-0687, under Order No. 95-309, and please credit any excess fees to such deposit account.

Respectfully submitted,



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